

Rainfall Frequency Tables, Average Annual Rainfall, and Historic Climate Data
Updated 4/9/12

Rainfall Frequency

For a given "Rainfall Event", like a 5 year / 2 hour storm, there is a certain amount of rain that would need to fall in that timeframe to be considered a storm of that magnitude.

These rainfall amounts are dependent on where in the country you are located.

There are tables created by NOAA for listing the precipitation frequencies for each state. The document that contains these tables is called NOAA Atlas 14. It was created in 2004 and revised in 2006. There are different volumes of the Atlas for different states. If you want to view the pdf of the atlas for your state, use this link: <http://www.weather.gov/oh/hdsc/currentpf.htm>

You can use this document directly, but it is much easier to use the Precipitation Frequency Data Server. NOAA's Precipitation Frequency Data Server gives output based on the NOAA Atlas for Precipitation Frequency.

This is the link for the Precipitation Frequency Data Server:
<http://hdsc.nws.noaa.gov/hdsc/pfds/index.html>

When you open the webpage, leave the default settings for DATA DESCRIPTION. Click on the map in the desired state, and then move the red crosshair to the observation site (or anywhere on the map), scroll to the bottom of the webpage and the server will give you a table for the different rainfall events.

Average Rainfall and Climate Normals

Climate normals are the averages in weather parameters. They were recently updated. The climate normals are calculated on a 30 year average and are updated every 10 years. The new normals, which use the climate data from 1981-2010, were recently released by the National Climate Data Center.

A useful website for looking up the climate normals, is: <http://ggweather.com/normals/index.htm>

First choose whether you want Monthly or Daily Normals. Then choose the state and city of interest. The data from this site is taken from the NCDC 1981-2010 climate data and were issued on July 1, 2011.

Historic Climate Data

For historic climate data, including rainfall, snowfall, and temperature use National Climate Data Center (NCDC). There is a lag of time between the actual date in question and the date that the information is posted on NCDC. This is due to the quality control checks that NCDC performs on the data. This lag can be several months. NCDC's main website is: <http://www.ncdc.noaa.gov/oa/ncdc.html>

*****Beginning the week of April 9, 2012, this data is now free for everyone, not just those with a government computer IP address. Previous problems that the EPA has had with getting this data for free, are now gone and we will no longer have to use a subscription entry into their website.

To access climate data, go to the website link, above. Once at this website, on the left hand side, click on the link in the Purchase section labeled "Most Popular". Then click on the first link "Most Requested". As you will see from the product list, almost all of the data is free if accessed online.

Scroll down to the "Most Requested E:" group. Choose the "Individual Annual Issue". Follow the menu prompts for your state of interest to get the climate summary from all reporting stations in that state.

The next page that comes up will contain a link to the pdf of that report. Click on the link and save the pdf to your computer, renaming it if you desire.

-- To use the Annual Report, you first find what division number is associated with your site. One of the last pages will have a map of the state broken up into numbered divisions. Find out which division your site is located in. From the beginning of the report, scroll through the pages until you see a heading for that division. Choose one of the reporting stations within that division. These usually relate to airports, public works offices, or larger cities.

In the Annual Report, there will be sections for monthly information for
Total Precipitation and Departures from Normal
Average Temperatures and Departures from Normal
Temperature Extremes and Freeze Data
Monthly and Seasonal Cooling Degree Days
Soil Temperatures and
Total Evaporation and Wind Movement (not usually complete for all stations)

-- If you need the data for specific days, then you would need to choose a monthly report and not the Annual Report.

If you have any questions or need any assistance retrieving weather and climate data, feel free to ask me.

Joan Rogers
EPA Region 5
rogers.joan@epa.gov
312-886-2785